

Notice of Allowability

Application No.

10/662,934

Examiner

Shamim Ahmed

Applicant(s)

MORLEY ET AL.

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/22/05.
2. ☒ The allowed claim(s) is/are 1-19 and 22-32.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 10/28/05.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


Shamim Ahmed
Primary Examiner
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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Crimmins on 10/28/05.

The application has been amended as follows:

IN THE SPECIFICATION:

At page 1, line 6, after the phrase "filed October 19, 2001," insert "now abandoned".

IN THE CLAIMS:

Replace the claims 13 and 19 with the followings:

13. (Currently Amended) The [[A]] process of claim 1 wherein the contour of the transition area comprises a controlled-for-controlling a cross section or topography of [[a]] the transition area of an etched feature in a substrate comprising
~~----- applying a resist mask to portions of the substrate to form one or more masked openings and a plurality of masked land areas, wherein one or more of the size, shape, and spacing of the land areas are selected to control a contour of the transition area of the etched feature.~~

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19. (Currently Amended) The process of claim 1 ~~A single step partial etching process to provide a feature on a substrate comprising the steps of~~
~~— applying a resist mask to selected portions of the substrate, and~~
~~patterning a mask area of a predetermined planar size and shape at a transition area of the substrate to form one or more mask open areas and one or more mask land areas, wherein the size, shape, and spacing of the plurality of one or more mask land areas and the size, shape, and~~

Cancel claims 20-21.

Replace the claims 22 and 23-32 with the followings:

22. (Currently Amended) The [[A]] process of claim 1 wherein the plurality of mask openings and mask land areas comprise ~~for forming a feature on a substrate comprising:~~
~~— applying a resist mask to selected portions of the substrate;~~
~~patterning a first mask area of a first predetermined planar size and planar shape to form a plurality of first mask openings and first mask land features that are dimensioned to provide a first area etch depth,[[.]]~~
~~patterning a second mask area of a second predetermined planar size and planar shape to form a plurality of second mask openings and second mask land features dimensioned to provide a second area etch depth, wherein the second area etch depth is reduced relative to the first area etch depth, and[[;]]~~
~~patterning at least a third mask area of a third predetermined planar size and planar shape to form a plurality of third mask openings and third mask land features dimensioned to control a contour of a transition area located adjacent to the first and second mask areas,[[; and]]~~
~~wherein etching the substrate results in -such that the substrate corresponding to the second mask area [[is]] etched to a lesser depth than the substrate corresponding to the first mask area, and results in the transition area adjacent to the first and second mask areas comprising comprises a contoured feature.~~

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23. (Currently Amended) The process A method of claim 1 wherein the contour of the transition area comprises~~forming a tapered substrate comprising~~
~~—applying a patterned resist mask to a substrate, the resist mask comprising a plurality of mask openings and mask land areas, the openings and land areas sized and spaced to provide an~~
formed by incrementally increasing an etch rate from a first end of the substrate to a second end
of the substrate,[[;]] and

etching the substrate such that the etch depth incrementally increases from the first end to the second end of the substrate to form the tapered substrate.

24. (Currently Amended) The ~~process-method~~ of claim 23 wherein the substrate comprises a plurality of zones, each zone including land mask areas having a different mask size than the land mask areas in at least one other zone.
25. (Currently Amended) The ~~process-method~~ of claim 24 wherein each zone includes mask openings having a different opening size than the mask openings in at least one other zone.
26. (Currently Amended) The ~~process-method~~ of claim 23 wherein the etch depth substantially linearly increases from the first end to the second end of the substrate.
27. (Currently Amended) The ~~process-method~~ of claim 24 ~~[[23]]~~ wherein each zone includes land mask areas having a different shape than the land mask areas in at least one other zone.
28. (Currently Amended) The ~~process-method~~ of claim 23 wherein the patterned resist mask comprises a square mesh of open areas and land mask areas.
29. (Currently Amended) The ~~process-method~~ of claim 23 wherein the patterned resist mask comprises circles, rectangles, squares, lines or combinations thereof.
30. (Currently Amended) ~~The process-A method of claim 1 wherein the contour of the transition area comprises controlling texturing of a surface of a substrate comprising:~~
~~———applying a patterned resist mask to the substrate to form a plurality of mask openings and mask land areas, the openings and land areas sized and spaced to control the texture of the substrate surface; and~~
~~———etching the substrate to provide a textured substrate surface.~~
31. (Currently Amended) The ~~process-method~~ of claim 30 wherein the textured substrate surface is smooth or rough.
32. (Currently Amended) The ~~process-method~~ of claim 30 wherein the textured substrate surface comprises varying degrees of texture.

2. The following is an examiner's statement of reasons for allowance: The prior art does not teach a process for controlling the contour of a transition area defined at specification page 8, lines 5-11, including the step of providing controlled mask openings and land areas for providing an etched depth in the transition area that is less than an etch depth at an adjacent etched or partially etched area of the substrate as the context of claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shamim Ahmed
Primary Examiner
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SA
October 29, 2005